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*SIMKINION*, A NEW GENUS OF PSELAPHID BEETLES  
FROM NEW ZEALAND

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Between May 1951 and March 1952, about 1,000 specimens of Pselaphidae were collected by the junior author in New Zealand, chiefly from the northern part of the North Island. In this material were fifteen specimens of a new genus, containing two new species, described in this paper.

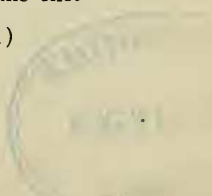
The two type specimens and half of the paratypes are in the collection of the senior author, with eventual deposition in the Chicago Natural History Museum; half of the paratypes are deposited with the junior author, at least some of which are to be deposited in the British Museum of Natural History.

Acknowledgment is made to many people who facilitated the course of this study, especially making available collections of pselaphids of New Zealand for comparison: the British Museum of Natural History (the Broun Collection); Director and staff of the Dominion Museum at Wellington and the Auckland Institute; private collections of Mr. A. E. Brooks, Mr. C. E. Clarke, and Dr. T. E. Woodward. To Dr. René Jeannel, of the Paris Museum, who confirmed the novelty of the series, we express our thanks, and to Mr. G. O. K. Sainsbury, of Wairoa, for his identification of the mosses in which these beetles are found.

The new genus is named in honor of Bishop Simkin, of Auckland. It is sluggish in the field, quite local in distribution, and appears to be a bryocole, living in mosses on the forest floor and on rotten wood.

**Simkinion**, new genus

*Diagnosis:* Brachyglutini having the following combination of structural features: (1) Four-segmented maxillary palpi, of which the first



is short and cylindrical; second elongate-sinuate with the distal end swollen; third short and subspherical and slightly wider than swollen end of second; fourth as long as second and slightly wider than third. The fourth segment bears distally a minute hyaline cone, which shows a central canal at 400 diameters magnification. (2) Ventral surface of head bearing a median, longitudinal carinoid ridge. (3) Mesocoxae slightly separated, and metacoxae well separated. (4) First visible sternite prominent between metacoxae. (5) Abdomen of five visible tergites and six visible sternites in both sexes, with well-formed lateral margins on the first three segments.

*Simkinion* has some affinity with the brachyglutine *Triomicrus* of China and Japan, but the latter has very different maxillary palpi and has the mesocoxae much more separated. The general aspect of *Simkinion* is eupinoid, and the *Eupines* complex is strongly represented in New Zealand, but these brachyglutines have the first sternite hidden beneath the metacoxae.

*Genotype: Simkinion prelatium*, new species

#### ***Simkinion prelatium*, new species**

*Type male:* 1.2 mm long  $\times$  0.5 mm wide (through elytra). Eupinoid aspect with shining integuments. General body color bright orange-brown. Head subimpunctate; pronotum with punctation slight and at times scarified; elytra punctate; abdomen subimpunctate, with a few scattered punctures on first tergite. Pubescence moderate on head and pronotum; elytra with short stiff setae; abdomen with pubescence more obvious and subappressed.

Head with length (frontal margin to cervicum) and width (through eyes) subequal, with evenly rounded corners. Eyes not prominent, slightly oblique suboval, each of ten facets, and placed far down on sides of head at about center of head length. Face simple, slightly concave. Vertex complex with an excavation at center of posterior third. This excavation interrupted anteriorly by a pair of deeper excavations which extend anteriorly beneath a conspicuous vertexal cap. This cap ends on frontal margin, between antennal bases. Posteriorly this cap is deeply and obliquely biexcavated, so that from a dorsal view the cap is trilobed. The lateral lobes of the cap are more or less rounded and dorsally carinoid, whereas the median lobe is acute. The excavations beneath the cap are setose and separated medianly by a lamina.

Antennae ten-segmented, twice as long as head, with a two-segmented club. First segment elongate; second slightly shorter and narrower than first, elongate; third much smaller and obconical; fourth as wide as third, shorter, obtriangular; fifth slightly wider than fourth and subspherical; sixth slightly wider than fifth, obviously elongate, and longer than either fifth or seventh; seventh small, slightly narrower than sixth, obtrapezoidal; eighth larger than seventh, transverse trapezoidal; club of last two, with ninth suddenly larger and transverse moniliform; tenth largest, nearly three times as long as ninth and obviously wider, with

distal third subacute and bearing a slight asymmetric incisure.

Maxillary palpi as noted for genus; labrum transverse; mandibles each with an acute ramus, left crossed dorsal to right. Ventral surface of head with a median, longitudinal carinoid elevation.

Pronotum slightly longer than wide, widest behind middle, with posterior third slightly oblique; disc unmodified; a small, nude antebasal fovea each side, these lateral foveae free; a vague fovea at center near base.

Elytra relatively simple; each elytron with two minute, nude antebasal foveae; an entire sutural stria from sutural fovea and a vague impression from humeral fovea; flank not foveate.

Metathoracic wings absent.

Abdomen with five visible tergites in following length ratio: 2.6/1.2/1.0/1.0/0.8 with last two subvertical; distinct lateral margins on first three segments. First tergite complex; median third posterior incised to form a transverse fossa, the anterior margin of which is slightly produced medianly; laterally this fossa is bounded by a glabrous, slightly concave lobe; medianly the posterior margin of fossa bears a stellate cluster of setae borne on a small cuspid tubercle. No basal abdominal carinae evident. Six visible sternites in length ratio as follows: 0.6/1.6/0.4/0.4/0.4/1.0 with the first seen as a rounded-triangular piece as long as metacoxae, and fitting into the arcuation of the metasternum, between the metacoxae; last sternite bearing a transversely oval concavity for median half of width.

Prosternum not medianly longitudinally carinate. Procoxal cavities confluent; mesocoxal cavities almost closed, there being a slight separation between the meso- and metasternal processes. Metasternum with posterior margin deeply arcuate between metacoxae; metacoxae separated by about the width of a mesocoxa.

Legs relatively simple. Pro- and mesofemora slightly inflated in distal three-fourths. At 400 diameters magnification, there appears to be a minute tooth on each metacoxa below the articulation of coxa and trochanter. Three-segmented tarsi, with first segment very short; second long, slightly wider distally; third shorter than second, bearing a single acute tarsal claw.

Aedeagus (Fig. 1) brachyglutine, 0.20 mm long  $\times$  0.10 mm wide.

Female as described for male except that (1) head slightly wider than long, rounded hexagonal; with circular eyes which are slightly more posterior than in male. (2) Vertex simple, slightly vaulted medianly, with a pair of nude vertexal foveae on a line through the anterior eye margins. (3) Antennae simple, eleven-segmented. (4) Abdomen of five tergites in length ratio of 2.2/1.2/1.0/0.8/0.8 with first tergite simple and unmodified. As in the male, there are no apparent basal abdominal carinae. (5) Six sternites with a length ratio of 0.8/1.8/0.6/0.4/0.2/1.0. (6) Femora much less inflated than in male.

*Discussion:* The sixth antennal segment of the male appears to be the equivalent of the sixth plus seventh segments of the female, as though

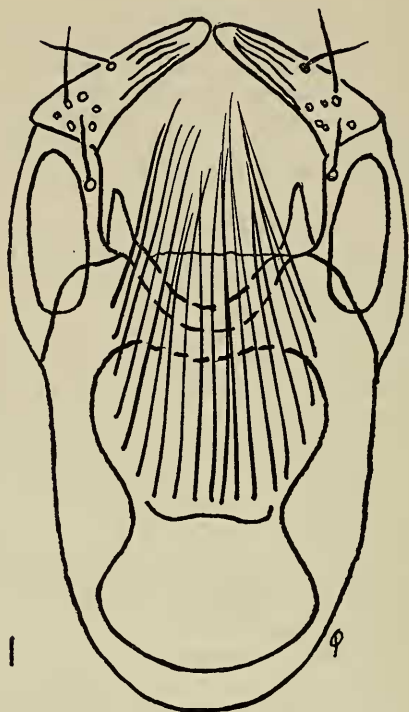


FIG. 1. Aedeagus of *Simkinion prelaticum* new species, 0.20 mm long and 0.10 mm wide, drawn from a slide mount at 400 X.

there had been a fusion through the process of selection. The sexes are easily differentiated by the presence of the highly modified vertex and first tergite of the male, as well as the different number of antennomeres, i.e., ten in the male, and eleven in the female. Among the male and female paratypes, the ocular facet number was constant at ten, but the eye outline varied from oblique oval to circular. Two other variations are to be noted. The median antebasal fovea of pronotum varied from a vague puncture with irregular margin to a well-formed but minute fovea. The extent and outline of the discal elytral impression from the lateral antebasal elytral fovea varied a good deal as between the specimens, but was always short.

This new species is described on a series of six specimens, type male, two male paratypes, and three female paratypes. All six were collected by E. J. Pearce on 26 December 1951, in mosses in the native forest through which the main road extends, near Russell, North Island, New Zealand.

**Simkinion bimanum**, new species

*Type male*: 1.25 mm long  $\times$  0.41 mm wide (through elytra), i.e., slightly longer and more slender than *prelaticum*. General body color and punctuation as in *prelaticum*, but the pubescence seemingly more obvious.

Head slightly wider than long; rounded hexagonal. Eyes, face, maxillary palpi, and ventral surface of head as in *prelaticum*. Vertex modified, but much simpler, vaulted medianly between a pair of small, nude vertexal foveae which are placed on a line through anterior eye margins. The vaulted tumidity is gradually sloped anteriorly to frontal margin, but posteriorly this tumidity is suddenly declivous. Beneath this posterior face of the tumidity the integument is formed into a transverse to lunate impression. (From a lateral view, this tumidity of *bimanum* appears as a subacute tubercle, whereas in *prelaticum* the vertexal cap is seen as a prominent, subappressed, and posteriorly directed horn. Another obvious difference in the vertex is that *bimanum* has the vertexal foveae obvious, as in the majority of Pselaphidae, whereas in *prelaticum* the vertexal foveae are not visible, being involved in the deep excavations beneath the vertexal cap.)

Antennae eleven-segmented and relatively simple. First two segments as in *prelaticum*; third, fourth, fifth subequal, obconical; sixth slightly transverse; seventh subequal to sixth, subspherical; eighth slightly wider than seventh, transverse trapezoidal; ninth larger than eighth, transverse trapezoidal; club of last two segments, tenth transverse lenticular and eleventh largest, and similar to last segment in *prelaticum*.

Pronotum and elytra as in *prelaticum*; no metathoracic wings.

Abdomen with five visible tergites in following length ratio: 2.0/1.4/1.0/1.0/0.8 with first tergite simple and unmodified. First three tergites with distinct lateral margins. First tergite with a pair of basal abdominal carinae which are short, straight, one-tenth as long as segment and separated by one-sixth of total segmental width. Six visible sternites, in length ratio of 0.6/1.6/0.4/0.4/0.3/1.2 with first sternite as in *prelaticum* and last sternite with a concave trapezoidal concavity for entire length of segment and occupying median half.

Sterna and coxal cavities as in *prelaticum*. Legs also similar for male *prelaticum*, except that the femora are distinctly more clavate.

Aedeagus (Fig. 2) qualitatively different from that of *prelaticum*, and slightly larger, being 0.23 mm long  $\times$  0.11 mm wide.

Female as described for male except that (1) the vertex is simply convex, not bearing the median vertexal tubercle; (2) basal abdominal carinae slightly more widely separated, being mutually apart by not quite a fifth of total segmental width; (3) sixth sternite simply, evenly convex; (4) femora not clavate.

*Discussion*: *S. bimanum* is much less modified in the male than is *prelaticum*, and consequently the secondary sex characters are much less obvious. Both sexes have eleven-segmented antennae and simple first



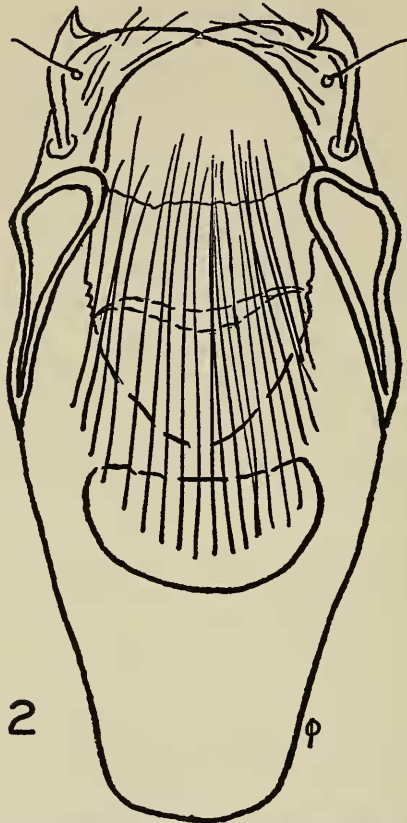


FIG. 2. Aedeagus of *Simkinion bimanum* new species, 0.23 mm long and 0.11 mm wide, drawn from a slide mount at 400  $\times$ . The pair of distal clavate processes suggested the name for the taxon.

tergites. The features most easily used to separate sexes in *bimanum* are the vertexal tubercle and concave last sternite in the males.

This new species is described on two specimens, male type and male paratype, both collected by E. J. Pearce on 26 December 1951, in mosses in Dobbie's Park, Whangerai, North Island, New Zealand. This is the type locality. We have seven additional specimens of *bimanum*, fully congeneric with the type series but from different localities, as follows: one male and one female collected by E. J. Pearce on 21 December 1951, in mosses in the type locality given for *prelaticum*; one male and one female by the same collector on 18 December 1951, in mosses in the Puketi Forest, North Island, New Zealand; one male and two females by the same collector on 29 May 1951, in mosses in the Kauri Forest, near Kaeo, North Island, New Zealand.

Mosses occupied by *Simkinion* are: *Weymouthia cochlearifolia* (Schwaegr.) Dix; *Mniodendron comosum* (LaBill.) Lindbl; *Dicranoloma Menziesii* (H. & W.) Par.; *Dicranoloma Billardieri* (Schwaegr.) Par.; *Hypopterygium novaeseelandiae* C. M. and *Ptychomnion aciculare* (Brid.) Mitt.

Neither of the two new species was collected in a single moss, so *Simkinion*, as far as is known, would appear to be a generalized bryocole. Small eyes of only ten facets, and lack of wings, suggest that the genus would expand its range slowly, and tend to be very local in distribution.